

What is claimed is:

1. A plasma arc machining method in which a workpiece is pierced by a plasma arc and cutting is started from the position where piercing has been done, the method comprising:

(a) a first step of relatively moving a plasma torch to a workpiece piercing position, the plasma torch having an electrode for forming a plasma arc between the electrode and the workpiece and a nozzle for jetting a plasma gas which is a parent material of the plasma arc, and positioning the plasma torch at an initial level in relation to the workpiece, the initial level being equal to or substantially equal to a cutting level which is the distance between the plasma torch and the workpiece when carrying out cutting operation or being a level which is closer to the workpiece than the cutting level and at which a double arc does not occur;

(b) a second step of forming a main arc between the electrode and the workpiece, initiated by a pilot arc generated between the electrode and the nozzle thereby establishing a plasma arc after the positioning of the plasma torch, and relatively moving the plasma torch to a piercing level while maintaining the plasma arc, the piercing level being a level more distant from the workpiece than the initial level;

(c) a third step of maintaining the plasma arc with the plasma torch being stopped at the piercing level until piercing operation is completed; and

(d) a fourth step of relatively moving the plasma torch to the cutting level to perform cutting operation after completion of the piercing operation.

2. The plasma arc machining method according to claim 1, wherein by a semiconductor switch inserted in a line which leads to the nozzle and is incorporated in a pilot current circuit for supplying a pilot current to the pilot arc, the pilot current is cut off immediately after transfer of the pilot arc into the main arc.